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ABSTRACT

A continuing concern in a number of teaching fields is the shortage of fully qualified teachers. The decisions of fully qualified teachers to continue in their teaching assignments (retention), to transfer to another assignment (transfer), or to leave the profession for some other activity (exit attrition) are the major determinants of the degree to which teacher shortages occur. This paper describes the "Comprehensive Retention and Attrition Model" (CRAM), a conceptual framework for organizing the numerous forms which teacher retention, transfer, attrition, and reentry can take. The model also incorporates teacher characteristics such as qualifications, age, and marital status, and an analytic approach to identifying teacher incentive variables having an impact on career decisions. CRAM provides a framework for conceptualizing teacher movements within the profession and exiting from it, and for designing research on teacher retention, transfer, attrition, and reentry from a national perspective. A short paper by the same author is attached: "Incentive Effects on Teacher Behavior." The focus of this paper is on using the Schools and Staffing Survey (SASS) of the National Center for Education Statistics to study incentive effects on teacher career decisions. (JD)

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COMPREHENSIVE RETENTION AND ATTRITION MODEL (CRAM)[1]

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October 26, 1990

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INTRODUCTION

Teacher retention and attrition is a major component of most teacher supply and demand models. Without knowledge of the extent and nature of retention, it is not possible to understand the dominant source of supply of the entire teaching force. Without knowledge of the extent of attrition, it is not possible to gauge the major component of demand for newly appointed teachers. And without knowledge of the extent of reentry of teachers who leave, it is not possible to gauge an important component of supply from the reserve pool. These relationships and other components of a teacher supply and demand model were diagramed by Haggstrom, Darling-Hammond, and Grissmer (1988, p. 25), reproduced as Figure 1.

The Haggstrom et al. model includes, in the attrition and reentry cycle, a category of "emigrants" who have transferred from one school system to another. A expanded model of teachers who leave a particular school is presented by Grissmer and Kirby (1987, p. 9), also reproduced in Figure 1. These models are very helpful in conceptualizing the flow of teaching personnel through various

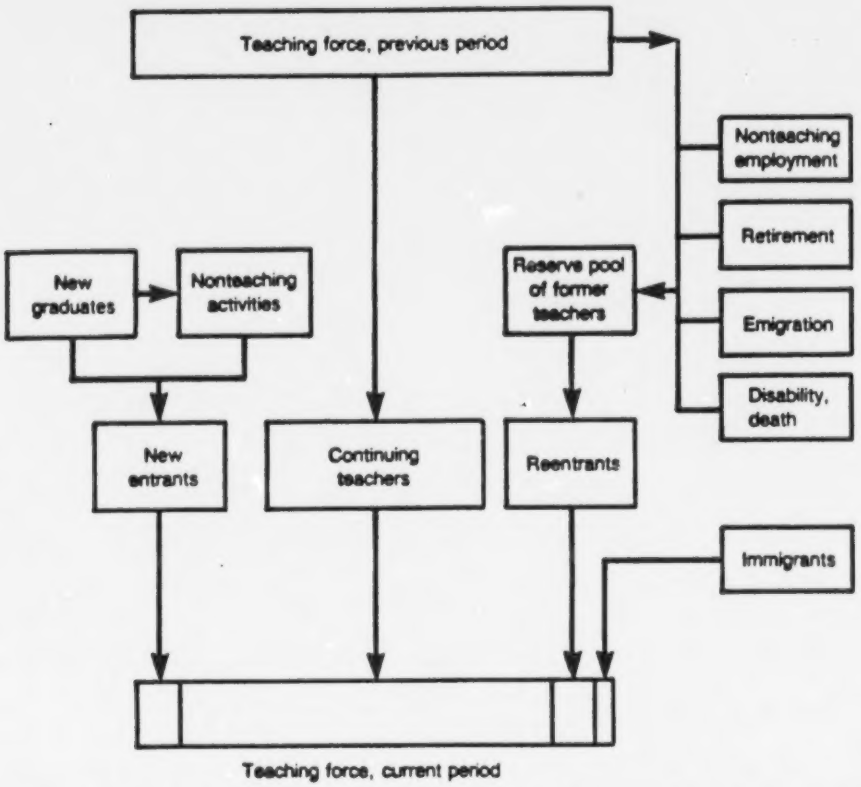

Fig.1--Schematic representation of flows in the teaching force. From Haggstrom et al. (1988), page 25.

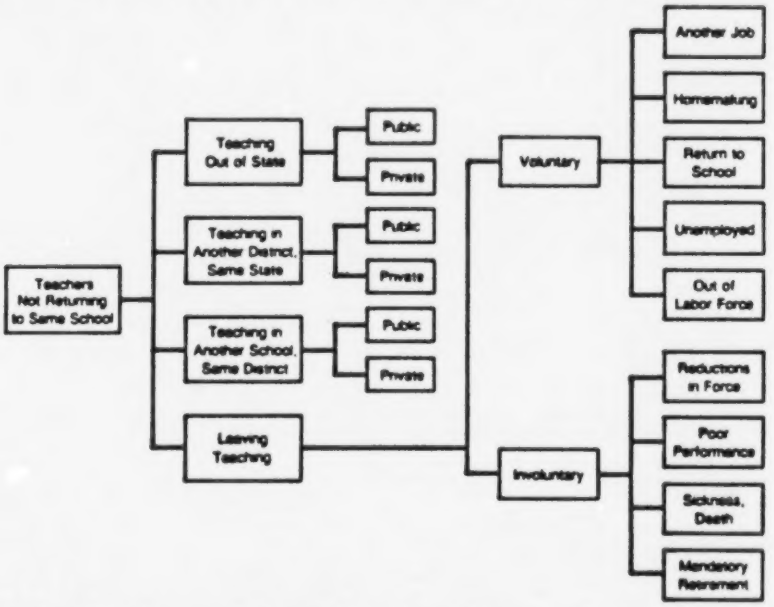

Fig. 2.1--Status of leaving teachers. From Gressmer and Kirby (1988), page 9.

input and exit channels, even though they are not presented in sufficient detail to account for all important alternatives.

These models serve as the points of departure for the development of the elaborated model of retention, transfer, attrition, and reentry presented here. Use of this model as a framework for the design of research on these teacher career decisions is made possible by the recent creation of national data bases by the National Center for Education Statistics (NCES).[1] For example, the available followup survey data on teachers who have left the profession represents a remarkable source of information on the causes of attrition that have not heretofore been available.

For convenience in subsequent reference to the expanded model presented here, it is given the title of "Comprehensive Retention and Attrition Model" (CRAM).[2] In summary, CRAM is a conceptual framework for organizing the numerous forms which teacher retention, transfer, attrition, and reentry can take. It also incorporates (a) teacher characteristic dimensions such as qualifications, age, and marital status, and (b) an analytic approach to identifying teacher incentive variables impacting on their career decisions.

TEACHER RETENTION, TRANSFER, AND ATTRITION FRAMEWORK

In CRAM, teacher retention is first subdivided into four basic types:

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[1]The data referred to are based on the results of the 1987-88 Schools and Staffing Survey and the 1989 Teacher Followup Survey.

[2]CRAM, as presented here, is developed with respect to teachers in public schools. It could easily be elaborated further to account for teachers in private schools.

(1) Absolute Retention, which refers to the retention of a teacher in the same major teaching field in the same school from one year to the next.

(2) Teaching Field Retention, which refers to the retention of a teacher in the same major teaching field from one year to the next, but not in the same school (i.e., the teacher transfers to a different school).

(3) School Retention, which refers to the retention of a teacher in the same school from one year to the next, but not in the same major teaching field (i.e., the teacher transfers to a different major teaching field).

(4) Profession Retention, which refers to the retention of a teacher in the teaching profession from one year to the next, even though not in the same major teaching field and or same school (i.e., the teacher transfers both to a different major teaching field and to a different school).

Similarly in this model, teacher attrition is subdivided into four basic types:

(1) Teaching Field Transfer Attrition, which refers to the transfer of a teacher to a different major teaching field from one year to the next, but who remains in the same school.

(2) School Transfer Attrition, which refers to the transfer of a teacher to a different school from one year to the next, but who remains in the same major teaching field.

(3) Dual Transfer Attrition, which refers to the transfer of a teacher to a different major teaching field in a different school from one year to the next.

(4) Exit Attrition, which refers to a teacher who leaves the teaching profession for some other activity from one year to the next.

The transfer of teachers between major teaching fields and between schools represents "transfer supply" for the field or school benefiting from the in-transfer, and represents "transfer attrition" for the field or school subject to the out-transfer. From a national perspective, of course, transfer supply does not add to the total supply of active teachers; it merely represents a reshuffling of the deck.

Retention and Transfer Supply

The total teaching force that continues from one year to the next undergoes some resorting in the field nationally. Most are retained in their same positions in their same schools, while others transfer to new schools or to different teaching fields. All these possibilities for continuing teachers are illustrated here in Table 1. The column totals represent the national teaching force, by major teaching field, during the current year (1990-91), which was retained from the prior year (1989-90). The rows represent the input sources of these teachers according to their school location and teaching field from the prior year (1989-90). The large group of teachers retained in the same teaching assignment (absolute retention, i.e., in the same school and teaching field) from one year to the next is classified in the diagonal cells (marked by X) of the first horizontal block (same school), while teachers classified in all the other cells of the table represent transfers to a different school and/or a different teaching field from one year to the next. It is this latter group that represents transfer supply. By inspecting the columns for subject matter fields, the pattern of retention in and transfer supply from one school location and/or teaching field to another can be observed. It should be noted that newly entering teachers in 1990-91 are not represented in this table.

Retention and Transfer Attrition

Similarly, the relationship between teacher retention and transfer attrition can be conceptualized as a two-dimensional table with blocks of rows defined by four levels of school transfer and the columns defined by major teaching fields, as shown in

Table 1

Two-Factor Framework for Teacher Retention and Transfer Supply

Transfer Supply: School Site Factor (1989-90)	Major Teaching Field (89-90)	Transfer Supply: Major Teaching Field (1990-91) SpEd	Math	Read	Lang	Bilg
1. Same School	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
2. From Different School: Same District	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
3. From Different School: Different District In-State	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
4. From Different School: Different District Out-Of-State	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
5. TOTAL Teachers: 1990-91 >		___	___	___	___	___

NOTES:
1. Diagonal cells (Xs) represent stability from year-to-year in the major teaching fields, while the off diagonal cells in a column represent transfer supply from different fields.
2. Teachers classified in the diagonal cells (Xs) of "Block 1: Same School" represent the large stable teaching force which continues to teach in the same field in the same school.
3. Teachers classified in Blocks 2, 3, and 4 during the prior year (1989-90) represent sources of transfer supply from different school sites. Those classified in off diagonal cells of these blocks represent combined major teaching field and school site transfer supply.
4. Five major teaching fields have been selected here to illustrate the teaching field transfer supply matrix. Since SASS identifies 32 distinct primary teaching fields, a much larger matrix with up to 27 additional fields can be analyzed potentially.

simplified form in Table 2.[3] The column totals represent the national teaching force, by teaching field, during a prior year (1989-90), which continued in teaching during the subsequent year (1990-91). The rows represent the destination of these teachers in terms of their school location and subject matter field in the current year (1990-91). The large group of teachers that is retained in the same teaching assignment (absolute retention, i.e., in the same school and teaching field) from one year to the next is classified in the diagonal cells (marked by X) of the first horizontal block (same school), while teachers classified in all the other cells of the table have transferred to a different school and/or a different teaching field from one year to the next. It is this latter group that represents transfer attrition. By inspecting the columns for teaching fields, the pattern of teacher retention in relation to transfer attrition from one school location and/or teaching field to another can be observed. It is important to note that teachers exiting the profession after the 1989-90 year and new teachers entering the profession in the 1990-91 year are not represented in this table.

From a national perspective, of course, transfer attrition does not detract from the total supply of active teachers. Transfer attrition from one school or teaching field to another represents transfer supply to the receiving school or field. It is, therefore, useful to compare Table 2 (Teacher Retention and Transfer Attrition) with Table 1 (Teacher Retention and Transfer Supply)

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[3]Transfer attrition to private schools, for example, could be added as a fifth horizontal block.

Table 2

Two-Factor Framework for Teacher Retention and Transfer Attrition

Transfer Attrition: School Site Factor (1990-91)	Major Teaching Field (90-91)	Transfer Attrition: Major Teaching Field (1989-90) SpEd	Math	Read	Lang	Bilg
1. Same School	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
2. To Different School: Same District	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
3. To Different School: Different District In-State	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
4. To Different School: Different District Out-Of-State	SpEd	X				
	Math		X			
	Read			X		
	Lang				X	
	Bilg					X
5. TOTAL Teachers: 1989-90 >		___	___	___	___	___

NOTES:
1. Diagonal cells (Xs) represent stability from year-to-year in the major teaching fields, while the off diagonal cells in a column represent transfer attrition from different fields.
2. Teachers classified in the diagonal cells (Xs) of "Block 1: Same School" represent the large stable teaching force which continues to teach in the same field in the same school.
3. Teachers classified in Blocks 2, 3, and 4 during the current year (1990-91) represent transfer attrition to different school sites from the prior year. Those classified in off diagonal cells of these blocks represent combined major teaching field and school site transfer attrition.
4. Five major teaching fields have been selected here to illustrate the teaching field transfer attrition matrix. Since SASS identifies 32 distinct primary teaching fields, a much larger matrix with up to 27 additional fields can be analyzed potentially.

because each organizes the transfer phenomenon from a different perspective. The enormous advantage of tracking these teacher transfers from national survey data is that cross-district and state transfers are identified as such. From district or state data, out-transfers may appear to be exit attrition instead of transfer attrition.

Exit Attrition

In contrast with transfer attrition, exit attrition can be subdivided into the various activities teachers undertake upon leaving the teaching profession (e.g., alternative employment or homemaking) and into other reasons for leaving the profession (e.g., reductions in force or death). Some of the major distinctions that can be made are as follows:

(1) Employment in a non-teaching education position;

(2) Employment in a non-education position;

(3) Return to student status in higher education;

(4) Homemaking and/or child rearing; or

(5) Retirement, death, or other.

Reentry

It is well known that many teachers who have exited the profession for another pursuit plan to <u>reenter</u> the teaching profession at a later date. Accordingly, the following distinctions are made among former teachers:

(1) Former teachers who do <u>not</u> plan to reenter teaching; and

(2) Former teachers who plan to reenter teaching; of two subtypes:

    (a) Former teachers who have <u>not</u> undertaken additional training; and

(b) Former teachers who have undertaken additional training; of two subtypes:

- Former teachers who have undertaken additional training to improve qualifications in their prior teaching field; and

- Former teachers who have undertaken additional training to develop qualifications to teach in a different field. (This group also represents a version of teaching field transfer attrition.)

Discussion

The above distinctions among types of teacher retention, transfer supply, attrition, and reentry of this new model (CRAM) provide a schema for classifying teacher movements in the field, or career decisions, over time. However, CRAM is further elaborated to account also for two other major factors necessary to understand patterns of retention, transfer, attrition, and reentry. The first is the demographic and socioeconomic characteristics of SETs as classified into the various categories of the CRAM framework. The second is the incentive/disincentive structure that provides the motive forces for major teacher career decisions (i.e., remaining in the teaching profession, transferring to a different teaching assignment, exiting from the profession, and reentering at a later date). The entire framework provided by CRAM takes all these considerations into account. Each of these two aspects of CRAM will next be considered in turn.

TEACHER CHARACTERISTICS

Retention, attrition, and reentry of SETs, all of which bear directly on the total supply of these teachers, vary as a function of teacher characteristics. For example, it is well known that attrition rates among teachers over age 60 years is relatively high

because of retirement. A partial listing of teacher characteristics of potential importance to their retention and attrition is provided below to illustrate this dimension of CRAM.

Teacher Qualifications

Teacher qualifications are the major concern with respect to retention and attrition. The policy goal is to maximize the production and retention of fully-qualified teachers, and to minimize attrition to other teaching fields and professions. A genuine concern in many teaching fields is that teacher shortages result in appointment of less than fully-qualified teachers.

Teacher Age

Teacher age is a major factor associated with exit attrition rates, with junior and senior teachers exiting the profession at a higher rate than teachers in the middle age range. The age distribution of teachers is therefore a predictor of attrition, and may be predictive of shortages depending on the replacement supply available.

Race/Ethnicity

It is often observed that the proportion of minority teachers is much lower than the proportion of minority students, and that this proportion has actually declined in recent years. In the judgement of many, there is, therefore, a shortage of minority teachers, whether or not the total number of qualified teachers is sufficient.

Sociological Considerations

Factors such as family structure and number of dependents of teachers are presumed to be related to employment stability. Many

teachers exit teaching, and later return, sometimes several times. Often this is a function of child rearing activities. These teachers contribute to both shortage and reserve pool supply statistics. Conversely, teachers who are primary wage earners are more likely to remain in their positions, and therefore not contribute to attrition rates and potential shortage.

TEACHER INCENTIVE ANALYSIS

Knowledge of incentives and disincentives influencing teacher career decisions (such as remaining in the teaching force, transferring to a different teaching position, and leaving the teaching profession) is vital information for policy makers who attempt to develop policies and programs designed to promote an adequate supply of fully-qualified teachers. In addressing this topic, it is first important to distinguish (a) between rewards, as such, and rewards that also function as incentives, and (b) between incentive programs, as such, and incentive programs that actually produce incentive effects (i.e., impact on) teacher career decisions. Information useful to policy makers and administrators is about manipulable rewards that actually function as incentives, and about incentive programs that actually produce an incentive effect on the decisions of qualified teachers to enter and remain in particular teaching assignments.

The conceptual framework (i.e., CRAM) for this proposed research distinguishes incentives from rewards to prevent confusing one with the other. Specifically, the definition of reward includes three elements:

1. A generally desireable object or condition (e.g., food, money, public recognition, positive student feedback, and the like);

2. A specified response or performance; and

3. A principle or rule under which the acquisition of a desireable object or condition follows and is contingent upon a specified response (i.e., a response/outcome contingency).

Based on these three elements, reward is defined as the response-contingent acquisition of a desirable object or condition. In addition to the three elements defining reward, the definition of incentive includes two further elements:

4. Knowledge by the performer of the response/outcome contingency; and

5. A subsequent increase in the strength or quality of the response upon which the outcome is contingent (i.e., an incentive effect).

Based on all five elements, incentive is the prospect of reward which energizes (i.e., increases) goal-directed behavior. This impact on goal-directed behavior is termed an incentive effect.[4]

In addition to the distinction made here between incentive and reward, it is useful to distinguish also between (a) incentive as a noun and (b) incentive as commonly used as an adjective. Specifically, the use of the term "incentive" as an adjective (as in incentive policy) does not imply that an "incentive effect" has been demonstrated empirically. The use of "incentive" in labeling policies and programs simply means that they are of the type which

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[4]For simplicity here, the focus has been on reward-based incentives. A parallel development for sanction-based incentives is made elsewhere by the author, as well as for the related topic of disincentives (Boe, 1989).

is intended to produce an incentive effect on performance as distinguished from the actual demonstration of such an effect.

Having made these distinctions about incentive phenomena, we turn next to the problem of how sample survey data can be used to examine teacher incentive phenomenon with respect to career decisions. The most useful type of teacher incentive research to educational policy makers and administrators is the study of incentive effects on teacher behavior, since they are primarily concerned with a broad range of influences on the composition of the teaching force and on teaching performance. Sample surveys, once conducted, create fixed data bases that do not permit experimental manipulation of incentive variables to study their effect on performance. In order to study incentive phenomena with survey data, it is first necessary to identify variables which represent generally desireable conditions for teachers (e.g., higher salaries) that are contingent upon a teacher response (e.g., decision to transfer to a different school system). These desireable conditions must be consequents of performance, not antecedents.

The identification of generally desirable conditions can be approximated from either common knowledge or from prior research. For example, acquisition of money is typically regarded a generally desirable condition. Its possible incentive effect can be examined if we know that its acquisition is contingent upon a performance. As another example, past research has shown that students of high ability are regarded by teachers as a generally desirable condition for teachers. The possible incentive effect of this condition can likewise be examined if the opportunity to work with high ability students is contingent upon a teacher's decision to secure a teach-

teaching assignment with such students. The potential for and approach to the study of incentive effects on teacher career decisions with sample survey data is described in considerably more detail in Attachment A. The surveys used to illustrate this general process are NCES's 1987-88 Schools and Staffing Survey (SASS) and the Teacher Followup Survey (TFS).

With these background considerations established, we next illustrate several potential incentive effects on teacher career decisions that can be studied with survey data. Retention, attrition, and reentry of teachers, all of which bear directly on their total supply, vary as a function of incentive variables inherent in the teaching profession (and in other professions as they contrast with teaching). For example, it is commonly thought that suburban locations generally have a stronger incentive effect on a teacher's decision about school location than do urban settings, and that therefore more fully-qualified teachers are recruited and retained in suburban districts. A partial listing of incentive factors of potential importance to teacher retention and attrition is provided below to illustrate this dimension of CRAM.

Economic Considerations

The teaching profession is commonly thought to be price sensitive, with higher salaries attracting a larger supply of qualified new teachers and prolonging the years in service of active teachers. A more subtle consideration is whether or not a teacher is the primary wage earner in a family. Teachers who are secondary wage earners are less likely to transfer to a different geographic area, unless the primary wage earner relocates.

Urbanicity of the School Environment

Teacher shortages, a joint function of high attrition and inadequate supply of qualified candidates, are often reported to be accentuated in rural and inner city areas. Location (i.e., geographic distribution) is, therefore, one major factor to be accounted for in calculating teacher shortage.

Working Conditions

A wide variety of working conditions, such as favorable class sizes, teaching loads, teacher autonomy, administrative support, etc., are thought to function as incentives in furthering the retention of teachers in a school and teaching field, or influencing them to transfer elsewhere if such conditions are poor.

Teacher Incentive Programs

Education policy makers have created a variety of incentive programs to influence positively the career decisions of teachers. Examples are bonus pay for teaching in a shortage teaching field or geographic location, career ladder opportunities for authority and bonus pay, and merit pay for exceptional performance.

DISCUSSION

A continuing concern in a number of teaching fields such as science and mathematics education, special education, bilingual education, and others is the shortage of fully-qualified teachers. Even though the vast majority of teaching positions may be filled, even with a predominance of individuals holding standard or regular certificates, some are teaching out-of-field (i.e., in specializations other than of their training and certification), many are not fully-certified, and others may be less able than current

professional standards specify. For all these reasons, shortages of fully-qualified teachers exist even though few teaching positions are actually vacant.

The decisions of fully-qualified teachers to continue in their teaching assignments (retention), to transfer to another assignment (transfer), or to leave the profession for some other activity (exit attrition) are the major determinants of the degree to which teacher shortages occur. Retaining qualified professionals in the classroom is the most promising approach to minimizing teacher shortage, while exit attrition is the major factor contributing to shortage. Thus the study of teacher retention and attrition is relevant to forming strategies and policies designed to maximize the retention of fully-qualified teachers, and to minimize their attrition.

Traditionally, there have been two main approaches to studying teacher attrition. The first has been to use teacher personnel data state contained in state administrative records. Three types of attrition figures have been obtained. The most frequently reported figure is attrition from the state maintaining the records. Attrition is measured when a teacher drops out of the records, even though the teacher may have transferred to another state or to a private school. The second measure is attrition from a school district within the state. Attrition is measured when a teacher leaves a district, even though she may continue to teach elsewhere. Finally, a third figure sometimes reported is changes in teaching assignment within a district. Within CRAM, this is referred to as transfer supply for the new teaching assignment, and transfer attrition for the former assignment.

The second approach to studying teacher retention and attrition is from national survey data in which all the movements referred to above can be tracked across school, district, state, regional, sector, and teaching field boundaries. Until recently, national survey data have been inadequate to support this approach. With the recent advent of NCES's new surveys, however, as described in previous sections, this approach is now feasible and offers the advantages of tracking teacher movements within and exiting from the profession nationally, and of studying the causes of attrition through followup of teachers who have gone on to other pursuits. CRAM provides a framework for conceptualizing these many possibilities, and for designing research on teacher retention, transfer, attrition, and reentry from a national perspective.

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ATTACHMENT A

Incentive Effects on Teacher Behavior

INCENTIVE EFFECTS ON TEACHER BEHAVIOR

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October 10, 1990

Two broad categories of teacher behavior of great importance to the field of education are (a) career decisions (i.e., decisions to enter teaching, to change teaching assignment, to remain in teaching or to leave the profession), and (b) instructional performance in the classroom.[5] Because of its content, the Schools and Staffing Survey (SASS) of the National Center for Education Statistics permits extensive study of possible incentive effects on the first of these two categories (i.e., teacher career decisions), but it does not permit study of quality or style of instructional performance.[6] Therefore, the focus below is on using SASS to study incentive effects on teacher career decisions.

The identification and study of incentive effects on teacher career decisions is very important because the attraction, distribution, and retention of qualified teachers are major issues confronted by educational administrators and policy makers. For example, shortages of qualified teachers in areas such as science, special education, and bilingual education are well known, and policy makers create and fund incentive programs for the purpose of attracting and retaining them.

In studying incentive effects on teacher career decisions, it is desireable to distinguish also between (a) policy-based incentives and (b) incentives that are inherent[7] in "the nature of things and circumstances." Both are external to a person and therefore observable. The difference is whether or not the incentive for teachers is manipulated by policy (e.g., incentive pay) or is inherent in the natural flow of events (e.g., positive student

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[5]In their review of incentive literature, Mitchell, Ortiz and Mitchell (1987) distinguish between motivation to participate in a work group or organization and to perform the tasks required of a specific job. Teacher career decisions are of the first type, while instructional performance is of the second.

[6]A few SASS items are related to the volume of instructional performance, such as the number of students taught and hours spent on various school-related activities.

[7]The concept of an inherent incentive should be distinguished from that of the widely used notion of intrinsic rewards (e.g., Mitchell, Ortiz, and Mitchell, 1987). Inherent incentives are naturally-occurring aspects of the observable environment which have an incentive effect on behavior, while intrinsic rewards are typically defined as subjective or psychic satisfactions.

feedback).[8] As described below, both policy-based and inherent incentives for teacher career decisions can be investigated in the SASS data base.

Policy-based teacher incentives, such as the provision of extra pay for teaching in a shortage area (e.g., science), are intentionally manipulative in that they attempt to increase the rate at which teachers make positive career decisions. In other words, they are intended to produce incentive effects on teacher choice behavior. However, the mere existence of a policy with "incentive" in the title does not ensure that it will have the desired incentive effect. SASS is a rich data base for exploring such incentive phenomena. For example, do local education agencies (LEAs) with incentive pay for teaching in a shortage field attract more qualified teachers and fill a larger proportion of available positions than comparable LEAs without incentive pay? Is a generous benefit package an inducement to qualified teachers to select and remain in an LEA when other possible influences are controlled? Analyses of SASS can shed light on the degree to which such policies work as intended. This makes it possible to compare the relative cost effectiveness of alternative incentive policies, all of which should be useful information to education policy makers.

In contrast with policy-based incentives, inherent incentives are not manipulated in an effort to influence teacher career decisions. These naturally occurring circumstances can nonetheless be influential. Incentives of this type can also be examined in the SASS data base. For example, inherent incentives might be operating in a teacher's decision to transfer from an urban to a suburban LEA. Perhaps it is to secure desirable outcomes such as the opportunity to teach more academically able students and/or to work in a safer environment. Such inherent incentives could be in competition with the policy-based incentive of higher pay intended to retain teachers in the urban LEA. SASS data can be analyzed with multivariate techniques to isolate the influence of potential inherent incentives on teacher career choices.

One of the unique advantages of SASS is its capacity, in conjunction with the 1989 Teacher Followup Survey (TFS), to study incentive factors involved in the decision of some teachers to leave the profession (i.e., exit attrition). The TFS surveyed about 2500 teachers from the 1988 SASS who left teaching at the end of the 1987-88 school year. These data are particularly powerful for exit attrition studies because they provide data on teachers

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[8]The distinction between policy-based and inherent incentives is not always clear. Is a relatively low average class size a policy-based incentive for attracting teachers, or is this established to enhance the quality of instruction? In the latter event, low class size might serve as an inherent incentive for attracting teachers. To be clear, a policy-based teacher incentive is one established by a policy authority with the clear intent that it produce a desired incentive effect on teacher behavior. Under other conditions, incentives are classified as inherent. Given this distinction, a particular incentive may change from one category to another depending on its treatment by policy makers. Even with these complexities, the distinction is important because it permits one to identify and focus on specific incentives which policy makers have manipulated in an explicit effort to cope with problems. Questions about how well they work, and whether they are worth the cost, can then be examined.

who have actually made a career decision to leave and acted on it. TFS data, as well as the base SASS, also makes possible the study of incentives involved in the decision of teachers to move from one school to another. Finally, SASS data similarly make possible the study of incentives involved in the decision of teachers to change their teaching assignment from one subject to another, whether or not they move to a different school.

Knowledge about forces underlying teacher career choices should be of significant benefit to education policy makers and administrators who attempt to cope with changes in the teaching force by creating policies and school environments that promote recruitment and retention of qualified teachers. Much can be learned from SASS (and TFS) about incentive and other factors associated with, and therefore predictive of, movement of individuals into, within, and out of the profession. Some of these can be manipulated by policy (e.g., incentive pay) and others by administrative action (e.g., creation of a supportive instructional environment). Although some of this is obvious or known from other sources, SASS can add a great deal and be particularly useful in analyzing the relative contribution of multiple determinants.